

13281 U.S. PTO
021004

CASE FOR TOOL SHAFTS

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a case for tool shafts, and particularly to a portable case that holds the tool shafts orderly.

2. Description of Related Art

With reference to Fig. 6, a conventional toolbox for general use is well known and typically includes a base in the form of an open-topped box (60) and a lid (70) pivotally attached to the box (60). The lid (70) has a clip (not shown) or other means to hold the lid (70) shut. The conventional toolbox typically has multiple compartments (80) to hold various tools and components, such as tool shafts.

However, the conventional toolbox does not have features to efficiently arrange the various tools. A person cannot conveniently select or remove appropriate tool shafts from the toolbox. When tool shafts are stored in compartments in the conventional toolbox and mounted in various tools, finding a particular tool shaft among many similar tool shafts is difficult.

The present invention has arisen to mitigate or obviate the disadvantages of storing tool shafts.

SUMMARY OF THE INVENTION

A main objective of the present invention is to provide a case that conveniently holds multiple tool shafts in order.

Further benefits and advantages of the present invention will become apparent after a careful reading of the detailed description in accordance with

1 the drawings.

2 BRIEF DESCRIPTION OF THE DRAWINGS

3 Fig. 1 is an exploded perspective view of a case for tool shafts in
4 accordance with the present invention;

5 Fig. 2 is a rear perspective view of the case for tool shafts in Fig. 1;

6 Fig. 3 is a cross-sectional side plan view of the case for tool shafts;

7 Fig. 4 is an enlarged operational cross-sectional side plan view of the
8 case for tool shafts in Fig. 3;

9 Fig. 5 is an operational perspective view of the case for tool shafts in
10 Fig. 1 with a tool shaft removed from the case; and

11 Fig. 6 is a perspective view of a conventional toolbox in accordance
12 with the prior art.

13 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

14 A case for tool shafts in accordance with the present invention
15 comprises a housing, a sliding member, a top cap, a bottom cap and an
16 optional suspension device. The housing has an opening and an entrance.
17 The sliding member is mounted slidably on the housing. Multiple tool shafts
18 are held movably inside the housing in parallel and are pushed toward the
19 opening by the sliding member. Thereby, an individual tool shaft is
20 positioned at the opening by the sliding member and is removed
21 conveniently from the housing through the opening.

22 With reference to Figs. 1 and 2, a preferred embodiment of the case
23 for tool shafts in accordance with the present invention comprises a
24 rectangular housing (10), a sliding member (20), a top cap (30), a bottom cap

1 (40), an optional suspension device (50) and an optional belt clip (18).

2 The rectangular housing (10) holds multiple tool shafts (not shown)
3 transversally inside the housing (10) and has a top face (not numbered), a
4 bottom (not numbered), a front face (not numbered), a rear face (not
5 numbered), two side faces, an opening (12), an entrance (14) a guideway (16)
6 and an optional slit (122). The opening (12) is defined in one of the side
7 faces to allow the tool shafts to be inserted into or removed from the housing
8 (10). The optional slit (122) is defined in the top face, communicates with the
9 opening (12) and is shaped to correspond to but be slightly smaller than side
10 edges of the multiple tool shafts to keep the tool shafts from passing through
11 the slit (122). The slit (122) also provides a space for adjusting the tool shafts
12 in parallel when the tool shafts have enlarged abutting ends and for pushing
13 individual tool shafts out of the housing (10) by users so that a tool shaft at
14 the opening (12) can be conveniently removed from the housing (10). The
15 entrance (14) is defined in the bottom so the housing (10) can be refilled with
16 multiple tool shafts. The guideway (16) is defined longitudinally in the front
17 face, communicates with the entrance (14) at the bottom and has two
18 longitudinal edges (162). The edges (162) respectively have multiple
19 corresponding notches (not numbered) formed at an angle.

20 The sliding member (20) is mounted slidably inside the housing (10)
21 and has a base (22), two resilient legs (24), multiple tabs (222), a push bar
22 (28) and at least one biasing member (26). The base (22) has a front face (not
23 numbered), a top face (not numbered) and two sides (not numbered). The
24 two resilient legs (24) are attached respectively to and extending down from

1 the two sides of the base (22), bending toward the rear face and abutting the
2 inside of the housing (10) to press the front face of the base (22) against the
3 inside of the front face of the housing (10). The tabs (222) are formed on and
4 protrude from the front face of the base (22) parallel to each other and at an
5 angle corresponding to the angle of the notches in the edges (162) of the
6 guideway (16). Each tab (222) has a base joint (not numbered) and two
7 opposite side edges (not numbered), and at least one tab (222) has two side
8 extensions (224) protruding from the front face of the base (22) and
9 respectively from the side edges of the at least one tab (222). The side
10 extensions (224) selectively engage the notches on the edges (162) of the
11 guideway (16) to hold the base (22) in position. The push bar (28) is
12 mounted above the top face of the base (22). The at least one biasing member
13 (26) is mounted between the top face of the base (22) and the push bar (28)
14 to press the push bar (28) against the tool shafts mounted in the housing (10).
15 The at least one biasing member is preferably a spring clamped.

16 The top cap (30) detachably mounted on the top face of the housing
17 (10) to close the opening (12), and the bottom cap (40) detachably mounted
18 on the entrance (14).

19 The suspension device (50) is attached to the rear face of the housing
20 (10) and has a lower attachment tab (52) attached to the rear face and an
21 upper suspension portion (54) with a suspension hole (542) to hang the case
22 on a protruding element (not shown) such as a hook or a peg. Additionally,
23 the optional belt clip (18) is attached to the rear face of the housing (10) to
24 attach the case conveniently to a belt (not shown) for trousers or a work belt

1 (not shown).

2 With reference to Figs. 3, 4 and 5, the top cap (30) has to be removed
3 from the housing (10) to open the opening (12) so the tool shafts can be
4 removed from the housing (10). Then, the tabs (222) are pressed to make the
5 side extensions (224) disengage from the corresponding notches on the edges
6 (162) of the guideway (16) so the sliding member (20) can be pushed upward
7 until the topmost tool shafts is pushed into the slit (122) and aligns with the
8 opening (12). The tool shaft in the slit (122) is pushed out of the case.
9 Additionally, the tool shafts can be reloaded into the housing (10) after
10 removing the bottom cap (40) and the sliding member (20) and are then
11 inserted into the housing via the entrance (14) at the bottom of the housing
12 (10).

13 The case for tool shafts as described has the following advantages:

14 1. Multiple tool shafts are gathered together in an orderly
15 arrangement inside the case, which makes finding a particular tool shaft
16 convenient.

17 2. The tool shafts are easily removed from the case by simply
18 sequentially pushing the tool shafts to the opening by pressing and pushing
19 the sliding member upward.

20 Although the invention has been explained in relation to its preferred
21 embodiment, many other possible modifications and variations can be made
22 without departing from the spirit and scope of the invention as hereinafter
23 claimed.